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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and improve the character of the service rendered to the public.

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GRAIN ELEVATORS BUILDING ON THE LAKES.

The congested condition of the elevators at the head of the lakes, following on the recent (and, prospectively, the contemplated railway) extensions into territory tributary thereto, bringing naturally their additions to the grain business of that market, has greatly stimuluated elevator building in both Duluth and West Superior, although the latter town seems to have gathered in the largest of the plums.

Most conspicuous of all these projects is the mammoth elevator for the Great Northern Railway at West Superior, the contract for the foundations of which was let on April 6 to a West Superior firm for $85,000. This house, which will be built to handle wheat, corn, oats and flax in separate departments, will have storage capacity for 6,500,000 bushels, or 2,500,000 bushels greater than any other elevator now in existence. It is to be ready for use by January 1 next. It will have a cleaning department of 3,000,000 bushels' capacity, which is more than twice the size of any cleaning house now in operation. This will be the central section of the system. It will be built of steel and will be surrounded by steel storage tanks, the larger of which are to be 50 feet in diameter by 65 feet in height, with interstitial tanks 15 feet in diameter. The total cost, including electric motors, etc., is estimated at $2,000,000. It will be similar in plan to the Great Northern Elevator at Buffalo of the same company.

The project next in importance, says the Elevator and Grain Trades Journal, Chicago, is a steel elevator which rumor says is to built on Rice's Point, at Duluth. At any rate, on April 4 there were filed for record two deeds to valuable dock property on Rice's Point, C. E. Thayer, of Minneapolis being the grantee. Mr. Thayer is a member of the grain firm of Gregory, Carter & Co., of Minneapolis, and Gregory, Jennison & Co., of Duluth, and also secretary of the State Elevator Co., of Minneapolis. The property is 900 feet long and 575 feet wide, and extends out into the bay. Little is now known of the plans of the purchaser, but the current rumor is that a 2,000,000-bushel house will be built on the site. It is also added, apochryphally, perhaps, that it will be a corn house and be controlled by Armour & Co.

Another important Duluth extension is that of the Consolidated Elevator Co. This company, as the reader remembers, is now at work enlarging Elevator E, adding about 500,000 bushels to its storage capacity. In addition the company has had plans prepared for an enlargement of Elevator H, which will add 1,500,000 bushels to the storage capacity of that house. This elevator is used for the storage only of corn and oats, which require no cleaning, no machinery to be added to the completed addition except that needed to move the grain. The entire elevator will have storage capacity for 2,700,000 bushels and both enlargements (Elevators E and H) will give the consolidated company 12,500,000 bushels' storage capacity.

Besides the houses named three "Hospital" elevators are talked of for the head of the lakes. The largest of these is credited to Dr. R. C. Ogilvie, of Superior, who contemplates a house with 100,000 bushels' storage, and 4,000,000 bushels' cleaning capacity. The second is credited to H. L. Chase, who is said to be figuring on a house of about the same size and capacity as Dr. Ogilvie's. Both of these houses are to be erected in Superior. The third is to be one of 50,000 bushels' storage capacity, cleaning capacity not stated. Rumor says it will be built by Mr. Hall, one of the owners of the Zenith Elevator Co., of Duluth, who will locate from that city. Hitherto all the grain to be cleaned in this part of the country has gone to Minneapolis, except that owned by the Amenia & Sharon Land Co., which cleans its own wheat at West Superior.

There are several other elevator projects "in the wind" in this market, besides those named above. One of these is a wheat elevator for the Ogilvie Milling Co., of Montreal. It is said it will be used exclusivly for handling through Duluth in bond the wheat purchased in Manitoba to go east to the company's Montreal mills and for export. Another is the Grain Growers' Association house, to be built, if the capital is subscribed, and legislative permission is granted, on a site owned by the state. Then there are to be flax elevators by Spencer Kellog, of Buffalo, and the Albert Dickinson Co., of Chicago, and a barley elevator for the H. J. O'Neil Grain Co., of Winona. How many of these will materialize with the "rare days of June," remains to be seen, but at least a considerable enlargement of the storage capacity at the Zenith City market is quite certain to be made.

FOR THE CANADA'S CUP.

The conditions for the Canada cup race have been settled. The boats are to be entirely wooden, and of the 25-foot class, and the races are to begin on Monday, Aug. 21, and be continued daily except Sundays, until concluded. Three judges will be in charge, with ample powers to manage the races within the conditions, which are briefly these: Winners of three races to be winners of matches; first, third and fifth races to be around a triangular course of 21 nautical miles; second and fourth races to be windward and leeward course of nine nautical miles, and return buoys to be left to starboard. Any race where the winner takes more than 5¾ hours to sail must be sailed over again. Yacht crews not to be more than six men, whose total weight shall not exceed 1,050 pounds. Each yacht may have a representative on board its opponent, but his weight must not exceed 150 pounds. Each day's racing will begin at 11 a. m. The judges are to be chosen from the regatta committee of the Yacht Association of the Great Lakes.

PRESIDENT MCKINLEY is to be asked to open the first sluice which will permit waters of the sanitary canal to flow into Desplaines river at Lockport, October 9th (Chicago Day). The main drainage channel will some day be a link in a deep waterway to connect the chain of Great Lakes with the Mississippi river.

THE United States torpedo-boat Somers, built at Elbing, Germany, and bought by the Government during the war, is being brought from Plymouth, England, to New York on the deck of the Atlantic Transport liner Manhattan. The Somers was found unfit to make the passage under her own steam.

A DEEP WATERWAY TO THE COAST.

In Self Culture for May, Mr. F. W. Fitzpatrick takes up the question of deep waterways for lake commerce in a very interesting and at the same time instructive manner. He makes a reference to the project of an isthmian canal, which, he says, has been discussed in one form or another for many years, but declares that while some work has been done at times, it took a war, weeks of anxiety and the Oregon's long voyage to open the people's eyes to the imperative, immediate necessity of an inter-oceanic waterway.

"The project of uniting our Great Lakes with the Atlantic ocean by a deep waterway may not be so venerable," says Mr. Fitzpatrick, "unless we believe, as an old lake captain puts it, 'that the good Lord always intended such a waterway, but, as usual, the engineer in charge made a slight mistake in levels and left us Niagara to contend with'; but its importance is greater, its commercial necessity more urgent, and it was only by a slip of the diplomatic cogwheel that its strategic value was not as forcibly impressed upon us. It has been discussed in and out of Congresses, surveys galore have been made for it, and commissions have reported upon it; but an all-American deep waterway seems as far off today as it ever was, and it would seem that only some national catastrophe or other great and unexpected event will fully awaken our people from their lethargic contemplation of this project, and compel them to demand that—Buffalo and railroad influences to the contrary notwithstanding—the work be actually done."

"The Mediterranean commerce of which we read so much equals that of our lower lake ports only. We 'clear' and 'enter' over 100,000 vessels a year from our lake ports; or in other words these entrances and clearances equal in tonnage the entrances and clearances from all our ports on the Atlantic and Pacific oceans combined. Today nearly half of our continent depends upon the lakes to lighten the burden of freight charges, and three-quarters of our direct Oriental trade passes through their channels. Even were the Nicaragua canal open, one half of this Oriental trade would still seek this shorter and quicker northern route to and from our eastern seaboard.

"Certainly the matter of cheapening freight transportation merits some consideration. We pay in freight bills over $800,000,000 a year—$60 per family, or one month's labor for every pater familias in the land. Railroads object to this reasoning, yet it is perfectly sound. They cannot compete with water-carriers, and had they carried what our lake vessels did this year, their proceeds would have been swelled just about $170,000,000 over what they did earn; but this freight carried on the lakes cost the shippers only $22,000,000 for transportation. Surely $150,000,000 saved to the people is as good as earned, and hence the bitter opposition of the parallel lines of railroad to anything that would still further benefit water carriage.

"While it may be argued that the St. Lawrence is the direct route from the lakes to the sea there is nothing commercially attractive about it from an American point of view. For all but the direct European trade it is a longer way around to the objective points; it is through another country, entailing never-ending difficulties about customs, shipping rules, etc.; and it neither feeds nor taps any of our great markets. We are glad enough to use the St. Lawrence now that someone else has opened it, but simply as a temporary makeshift. What we do want, have clamored for, and are now clamoring for—but have almost despaired of ever obtaining, although we have a survey thrown to us every year or two to keep us quiet—is an all-American route passing by and feeding our great markets of the East and terminating at New York, the logical eastern terminal for our Western business."

NEWS AROUND THE LAKES.

ESCANABA.

Special Correspondence to The Marine Record.

The eleven-foot light ship was taken out to the shoal the latter part of last week.

The first lower lake craft to reach port was the steamer Norwalk, with a load of coal for J. F. Oliver.

The steamer C. W. Moore, Capt. Ed. Hart, of Green Bay, arrived here last Friday, with a heavy load of freight.

The last of the ice went out last Saturday afternoon, and not a bit can be seen from the lookout tower on the ore docks.

Captains arriving from lower lake ports report no ice in the north passage, but there is still a small amount around the "Shank" and the south passage.

To the steamer Maryland, of the I. O. T. fleet, belongs the distinction of starting the ore season of '99, as she took a load out on the 26th, bound for South Chicago.

It seems queer to note the feeling displayed by the ore trimmers towards boats that have cargoes trimmed and those that do not. They claim the big carriers have nearly killed their trade.

In regard to the rumor to effect that Capt. C. B. Hart had disposed of his interest in the Hart Steamboat Line. I hear that such is not the case, as he still is one of the principal owners, and commands the passenger and freight steamer Eugene C. Hart.

The lumber fleet reached Menominee on the 23rd, and experienced considerable trouble with the lumber shovers, who demand a higher rate than was paid last season. Some of the boats loaded with their own crews, while others picked up men enough at Sturgeon Bay to load them.

Steamer Lotus has commenced on her regular schedule between points on Little Bay de Noquet, and the steamer New Baltimore is making trips to ports on Big Bay. Four boats of the Mutual line arrived here within about an hour Saturday, having made the trip from Erie together, they got away again early Sunday morning.

The tugs Delta and Owen were taken to Detroit, Monday, where they will be used in general towing. They were purchased by Hawley Bros. of Detroit. Capt. Ed. Hawley and Capt. Richard Tobin arrived here last Saturday with two crews to take the tugs down. Delta leaves this port with but one tug, the wrecker Monarch.

The rumor that the Lake Michigan Car Ferry Transportation Company would try to carry ore on its barges proves to be a fact, as the No. 3, in tow of the tug E. G. Crosby, arrived Saturday night and took out its first load. The Crosby will be used to tow the barges between here and Sturgeon Bay, where the tug S. M. Fisher will take them in charge. Nos. 1 and 2 will still be used as before, and 3 and 4 will be put in the ore trade. The fleet will be commanded as follows: Steamers—S. M. Fischer, captain, Fred Johnson, engineer, Jay Phillis; E. G. Crosby, captain, Alex. Bohlin, engineer, Geo. Quackenbush. Barges—No. 1, captain, Wm. Chambers; No. 2, captain, Martin Nygard; No, 3, captain, John Mathisen; No. 4, captain, Mattew Emmerson; Manager, J. J. Coleman.

AMHERSTBURG, ONT.

Special Correspondence to the Marine Record.

The steamer Wyandotte started on her regular daily trip Monday morning between here and Detroit.

The steamship Monteagle put on her fuel at this port Sunday, not being able to get immediate coaling below.

The Detroit Belle Island Ferry Co., who own Bois Blanc Island Park, opposite here, are putting things in shape for the excursion season.

A most imposing sight has been witnessed here the last two days. No less than 166 craft of all kinds having passed up and down in the past 48 hours.

Soundings have all been taken here for the 21-foot channel, and the Engineer Corps are preparing data for bidders. It is expected contracts will be let about July 1.

Wigle Bros., of this place, have bought the speedy yacht We C. U. from Detroit parties. She will be made a Canadian bottom and go in the excursion business here.

A sailor on the steam barge S. C. Hall's consort was accidentally knocked overboard when passing here Saturday. A ladder was thrown him, and after a bicyclist had speeded down the bank and stopped the steam barge he was picked up all O. K., little the worse for his experience.

The U. S. Engineer Corp's gang are sweeping the river from the Limekilns down to the lake, looking for boulders which are generally pushed in by the ice and dragging tow lines. Several have been located and removed so far. There is good 18 feet of water over the Crossing this spring.

On Sunday at noon while the steamship Robert Mills was half way between the lightships on Limekiln Crossing, bound up, her wheel chains parted and she went good and hard on the rocky bottom of the east bank, going out nearly a foot. The Saginaw was telephoned for and she was released after nine hours' hard work.

BUFFALO.

Special Correspondence to The Marine Record.

Thursday, April 27, saw the exodus of the winter fleet and they walked through the ice without trouble.

The steamer Wallula was struck by the City of Venice in the harbor on Wednesday and received some slight damage.

As much as two million bushels of grain arrived here within twenty-four hours on the first rush of the opening of navigation.

Edward Saveland has been sworn in as master of the schooner Adriatic, in place of the Adriatic's former master, W. E. Williams.

Relatives of Capt. Duncan MacLeod are anxious to locate him, on account of the death of his mother, Mrs. Christina MacLeod. She was 69 years of age and the widow of Capt. Angus MacLeod, who was killed at Ashland, Wis., about six years ago.

The future of the steamers of the Ogdensburg line is uncertain. The engineers have been discharged pending definite arrangements for the season. The boats are all ready to load, but there seems to be a hitch in the proceedings somewhere.

Instead of calling at Ohio ports to load cargoes of bituminous coal, many of the steamers which wintered here will proceed to upper lake ports direct. There is very little for the vessel in loading coal direct and it almost argues a loss to change ports for a cargo at a 30 cent rate of freight.

The steam pump which was put on board the steamer Iron Age at Port Colborne on Wednesday, failed to gain on the inflow and divers went down to patch the leaks. The water had reached a height of five feet before it was checked. Part of the cargo will be unloaded and she will then be brought to this port for dry docking, survey and final repairs.

The Wilson Transit Co. has established new offices at Buffalo with W. J. Stewart as eastern agent for traffic in charge. It will hereafter do the lake and rail business of the Wisconsin Central railroad from Manitowoc, connecting at Buffalo with the Lehigh Valley and Delaware, Lackawanna & Western. Last year this business was in charge of the Great Lakes Steamship Co.

Propellers Portage and Avon are at the drydocks receiving extensive repairs to their upper works. The Avon was ready on Tuesday, but it will be two or three days yet before the Portage will be in shape. The work is being done under the supervision of Frank Williams, formerly vice-president and general superintendent of Wheeler's dry docks at West Bay City and lately assistant superintendent of the Union dry dock.

This port is not going to be behind the age in furnishing protection to shipping and river industries in so far as danger from fire is concerned. The council has this week passed a resolution to appropriate the sum of $75,000 for the construction and equipment of another fire tug. This is in line with a petition or letter which Capt. Maytham sent to the board of aldermen last week, asking that such steps be taken in the interests of the commerce of the port.

Shippers are kicking about insurance rates on cargoes. Compared with last year, a big jump in rates has been made, and coal men say that they are up against it almost as hard as the vesselmen. Local shippers have received several propositions from the underwriters, but there is very little choice in them. One of the propositions follow. Coal cargo insurance rates: A 1, 12 cents; A 1½, 17 cents; A 2, 28 cents; A 2½, 45 cents; B 1, 67 cents. On A 2½ vessels shipments to cease after Nov. 1, on B 1 vessels shipments to cease after Oct. 1, on A 1 steamers risks covered until Dec. 5, on A 1½ and A 2 steamers and consorts risks covered until Nov. 30. Cargo on deck at double rates.

Now that the season has fairly opened it is to be deplored that labor troubles are interfering with the discharging of cargoes at this as well as several other ports. The grain shovelers here are at loggerheads, and a small-sized riot, with some shooting and loss of life took place this week. The better element seem to support the master porter's side of the question, and from all appearances he has acted straight and above board with the men all through. The fact remains, however, that great detention has already been experienced by vessels, and the end is not yet in sight, although the municipal authorities are doing and have done all that is possible to bring circumstances around toward a peaceable and orderly working basis.

The anthracite shippers are up in arms against the proposed demurrage clause in the bill of lading. A meeting was held on Monday in the Pennsylvania office, to take action against it, and it was the unanimous view of all that the clause was an imposition on the trade, but it was at length agreed not to take any decided action, but merely to ignore the matter. The bills are to be issued by the shippers anyhow, and all they will have to do is to omit the clause. Then if the vessel owner refuses them there is time enough for direct action. The shippers will not agree to demurrage, and it looks as though the vessel owners would have to yield. It is the claim of the shippers that the vessel is fully as much accountable for delays in unloading as they are. There is a little feeling, too, on account of the failure of the vessel owners to invite the hard coal shippers to the meeting in Cleveland, where the demurrage clause was agreed to by the vessel owners and the soft coal shippers.—The Black Diamond.

DETROIT.

Special Correspondence to The Marine Record.

The whaleback barge 105 is out of dry dock, the 107 and 116 will also dock this week.

The John F. Eddy is receiving a new boiler at the yards of the Detroit Dry Dock Co.

The barge Amazon arrived here from Buffalo on Monday and loaded the cargo of the Aurania.

The steamer Troy, Capt. Gillis, which has been undergoing repairs at Wyandotte, has left for Chicago.

Hugh Phillips will be captain of Ashley & Dustin's steamer Wyandotte, this season. Phillips' last season was mate on the Kirby.

F. Brust, of Detroit, will have charge of the construction of the new light-house to be erected at Long Tail Point, in the Green Bay district.

The bow of the J. W. Moore was stove in by the ice as she was leaving Buffalo for Milwaukee with a load of coal. Repairs were made at the Detroit dry dock.

The new swing bridge of the C. P. R. over the government canal at Sault Ste. Marie is 408 feet long, and gives an entrance 150 feet wide to the Canadian lock.

Navigation on the entire chain of lakes is now open, except at Port Arthur, and reports indicate that even the north shore of Lake Superior will be free of ice in a day or two.

Dr. W. W. King, who has been acting as assistant surgeon in the United States marine hospital service during the past year, has received orders to report at the Reedy Island quarantine station, Delaware.

The State of Michigan, which will be run on the Cleveland-St. Ignace route this season, has been given a thorough overhauling and repairing and is now in excellent shape. The State of Michigan's interest in Detroit will be cared for by Ashley & Dustin.

The Detroit Belle Isle and Windsor Ferry Co. has purchas the southern portion of Bois Blanc Island, consisting of 70 acres, which will be added to the Bois Blanc resort, giving them a total of 130 acres. Many improvements are already under way and the place will be made very attractive for visitors.

Supt. C. B. Calder, of the Drydock Engine Works, who superintended the building of the engines for the Aurania, predicts that when she is placed in commission she will be the most economical carrier on the lakes. These claims or similar ones are frequently made but don't always eventuate as predicted.

Northern Navigation Co., Limited, Collingwood, Ont., give notice that the first boat of the Georgian Bay & Lake Superior Steamship Line for Sault Ste. Marie, Port Arthur, Fort William and Duluth, will leave Collingwood on Saturday, May 6th, 1899, at 2 p.m. and regular sailings will be made thereafter.

The wheel chains of the steamer Neshoto, bound up, parted on Monday night, at Grosse Point. She returned here, and repairs were made at the upper dock. The accident of wheel-chains parting has become rather common, and nothing but a rigid and regular inspection of this important part of a vessel's equipment can avoid casualties.

The Detroit steamer Livingstone opened navigation for Chequamagon Bay, arriving May 1. Captain McAlpine says that he encountered the ice off Vermillion Point and Ontonagon. It took eight hours to break through the ice fields in the channel south of Madeline Island, a jam having been made there by northeast winds. Inside of the islands the ice has disappeared.

The boilers of the converted barge Aurania were tested last Friday, and the engines will be connected in a day or two, while the upper works are now being constructed. Supt. C. B. Calder has directed the construction of the engines, which are triple expansion, with a 36-inch stroke. The cylinders are 17, 27½ and 46 inches, in diameter. The boiler is 13½ feet long, fitted with the Howden hot draft, and will carry a pressure of 165 pounds of steam. The engines were built to develop 900 horse-power. The capacity of the vessel will be 5,000 gross tons.

It is pleasant to state that the Oades' yard has been busier during the winter than for several seasons past In fact there is a couple of months work ahead yet and more in sight. While there has been no new vessels turned out, extensive rebuilds have almost amounted to that, and large general repairs and overhauling, etc., including considerable calking has kept the yard going on full time. A new cabin was put on the light-house tender Marigold, also the Haze and the light-ships underwent a general overhauling and refitting, new work being put in wherever needed.

The Wheeler shipyard is employing nearly 200 hundred men, and work is being rushed on the lumber barge for the Spaulding Lumber Co., of Chicago. Steel continues to arrive, a few car loads at a time, and as soon as a sufficient quantity has arrived a larger force of men will be employed. The keel for the boat is laid in the new yard, and the Brown hoists and cranes are in operation. The punching sheds and blacksmith shops are being used, and two steam riveting machines are being employed to do the riveting. The engines for the steamer are being built in the machine shops under the direction of William Wills.

CHICAGO.

Special Correspondence to The Marine Record.

The City of Chicago and City of Milwaukee, of the Graham & Morton line will start on their run May 15.

The wooden steamer Marion has been sold by Danaher & Cochrane to Samuel Neff, of Milwaukee. The price paid is said to be $30,000.

The cargo steamer building at the yards of the Chicago Ship Building Co. for the Minnesota Steamship Co. will be named Maunaloa. The steel tow barge, the Manila.

The railroad competition on grain was felt here during the early part of the week. Some of the vessels that held out for 1¾ cents on corn on Monday were sent to Lake Superior.

E. S. Lord has been appointed agent of the Wilson Transit Company, of Cleveland, which will operate the steamers Olympia, Tower and Spokane between Manitowoc, Cleveland and Buffalo, in connection with the Wisconsin Central Railroad.

Vessels are not a bit too eager to accept 1½ cents on corn to Buffalo, and on Wednesday refused that rate. There has been some charters, however, at that figure and it will be found very difficult to improve on it for the next few days at least.

The large steel steamer W. R. Linn, C. W. Elphicke, manager, opened the season by starting out on Thursday, April 27. She was closely followed by a large fleet and navigation has been brisk ever since, both in arrivals and departures.

The United States marshal, at Milwaukee, has seized the schooner Aberdeen on a salvage claim of $1,875, preferred by the Crosby Transportation Co. The steamer Nyack, of the Crosby line, picked the Aberdeen up in Lake Michigan, last fall, after finding her in a disabled condition.

The heat during the early part of the week was simply intense, coming so quick after the cold winter weather. Quite a number of people engaged in outside work were prostrated and some cases were considered as being serious. A milder spell set in again on Tuesday night and Wednesday morning.

The coal heavers' strike, at Milwaukee, has demoralized the coal trade and the port is about blockaded. To say that vessel owners are impatient of this delay does not describe the situation. Brokers and shippers that expected boats here from Milwaukee are also put out and in some cases other charters have had to be made.

On account of the high rates of insurance a number of Milwaukee vessel owners would like to form a mutual marine insurance and brokerage club. It is, however, too late now in the season to get enough tonnage together to make this departure any kind of a success, at least such is the view of a vessel agent here with whom I brought up the subject.

Shippers are generally accepting the clause in the new bill of lading for grain cargoes. Vessels are no longer consigned to a particular grain elevator to take her chances whether there is a fleet ahead of her there or not. Grain is now consigned to Buffalo and the individual consignee must have it discharged without undue detention to the vessel. This improvement, as well as the demurrage clause in the coal bill of lading has been brought about by the Lake Carriers' Association.

Allowing for the change of winds and everything else that affects the water level, there is no doubt but that we are having a neap of about six inches here so far this season and trouble will be found in getting over the tunnels, besides, a great loss will be experienced on account of vessels not being able to load a full cargo. It is quite evident that if Chicago is to maintain her vast shipping interests something will have to be done to improve the river, draft of water, etc.

A steam dredge employed in excavating a new slip for the Illinois Steel Co. at South Chicago, struck a heavy mass of iron in the form of the lower half of an abandoned furnace, which had "died out" with a chilled charge. The removal of the obstruction required the combined efforts of the dredge (of ninety tons capacity) and a locomotive. A piece of track was laid up to the obstruction, the locomotive pulled and the dredge lifted, and the mass of iron, which is said to weigh fifty tons, was moved out of the way.

Bids for the construction of two new bascule bridges across the Chicago river at Taylor street, were opened by the sanitary board this week. One bridge is to replace the city's present structure and the other is for the Chicago Terminal Transfer Railroad. The Chicago Bridge and Iron Company's bid, the lowest for the city bridge, was $71,040. The Pennsylvania Steel Company's bid was the lowest on the railroad bridge, the sum being $297,384. The specifications require that the work be completed by Oct. 1, but the bidders all declined to be bound by this provision. Trustee Jones expressed the opinion that all the proposals were irregular therefore and should be thrown out. The bids were referred to the engineering committee, which will decide the matter.

IT is said that the low rail rates are taking large quantities of corn East from Minneapolis. A Minneapolis paper estimates that 4,000,000 bushels have been shipped from that place in the past fortnight.

CLEVELAND.

Special Correspondence to The Marine Record.

The Joliet and La Salle opened navigation at Marquette May 2, closely followed by a fleet of seven other large steamers.

Capt. E. J. Donahue has purchased a third interest in and will this season sail the Fostoria. Capt. Donahue was on the Hattie last year.

The City of Erie, of the C. & B. line, had a good run up from Buffalo on Wednesday. She made the trip in about 11 hours. The boats will be running on schedule time by the end of the week.

The steamer J. C. Lockwood, on account of her recent sale, will hereafter be known by the name of Case—F. B. Case, managing owner; Capt. J. D. Peterson is still the master, and F. P. Fitzgerald, chief engineer.

The large steel steamer M. A. Hanna, which was launched from the yards of the Globe Iron Works Co. a few weeks ago, will be inspected and have her boilers tested this morning, as she is about ready to leave port.

Among the out-of-town men who visited this port during the week are Mr. Alex. McVittie, of the Detroit Dry Dock Co.; Supt. Gaskin, of the Union Dry Dock Co., Buffalo; Capt. Herriman, of Chicago, and Mr. E. Platt Stratton, of New York.

The Chicago corn rate has dropped ¼ cent on corn on account of the railroad competition, 1½ cents is now offered. The Duluth rate on wheat is 2½ cents to Buffalo, at least this is the figure named, but there has been little or no chartering for the past few days.

Saturday, May 13 has been named as the date for the launch of the steel steamer, building at the Lorain yards of the Cleveland Ship Building Co., to the order of Messrs. Hawgood and others, now known as the Eureka Transit Co. The steamer has been built specially for the Welland canal trade.

Mr. Schumann is distributing the history of the Great Lakes just published by J. H. Beers & Co., Chicago. As was to have been expected, several Cleveland people signed for and agreed to subscribe for the work who now repudiate their own signatures. Such folks should be publicly shown up.

The coal rate for Lakes Michigan and Superior has been steady with a fair demand at 30 cents. Iron ore is, as previously quoted, 50 cents, Escanaba; 60 cents Lake Superior; but a better rate is looked for in the near future from both points. Owing to labor troubles, Milwaukee charters are not being grasped at, nor will they be until it is settled what the coal heavers are going to do in the matter of discharging.

The new revenue cutters Onondago and Algonquin, built at Cleveland by the Globe Iron Works Co., have been ordered to Baltimore for changes in their pilot houses and other parts of their interior. The E. J. Codd Co. has been awarded the contract for the changes. Capt. C. S. Willey, who has been in command of the customs cutter Washington, at Philadelphia, for several years, has been detached and ordered to command the Algonquin.

Capt. James Davidson, of West Bay City, has sued the Franklin Iron Mining Co. for $6,304 damages for alleged breach of contract. The local representative of the mining company is M. A. Hanna & Co. The petition sets up that the plaintiff entered into a contract in 1896 with the mining company to transport 100,000 tons of iron ore in his fleet of lake vessels at $1 per ton. He carried 87,392 tons and then alleges the defendant failed to furnish the balance of the contract.

Lieut. C. C. Fewel, U. S. N., has been detailed as officer in charge of the branch Hydrographic Office at this port. Lieut. Fewel served on the dispatch boat Hornet during the war with Spain, and was engaged in two skirmishes with the Spaniards off the coast near Matanzas. In July he was transferred to the Marblehead, where he remained until March, when he received leave of absence to spend a few weeks at home. He came direct from his home at El Paso to Cleveland.

Mr. E. Platt Stratton, Chief Engineer Surveyor for the American Bureau of Shipping, 37 William St., New York, visited this port for a couple of days this week, returning East on Wednesday night. Mr. Stratton did not so state but it is surmised that he was here to class a new vessel in the Record of American and Foreign Shipping, the classification register published by the American Bureau of Shipping. Mr. Stratton did say, however, that all of the important new tonnage under construction on the coast were building under their rules and intended for classification in the Record.

The American Ship Building Co. held a meeting on Wednesday, in which they went over the plans of operating the concerns during the coming summer. Nothing was done, however, outside of the general discussion of the plans, nor was anything arranged relative to selecting the superintendents for the various plants as it was thought they would do. This would leave the impression that for the present season the yards would be left in the same hands they have been, as it would be dangerous to change managers or superintendents now that they are rushing some work and the season of repair work is coming on. There was some talk of taking in the Wheeler plant, but nothing definite was done at this meeting.

FLOTSAM, JETSAM AND LAGAN.

W. F. Herman, general passenger agent of the Cleveland & Buffalo Transit Co., is out with his announcement of the spring opening. He has even a more clever device than ever. It is a card having a picture of one of their large vessels steaming in a sea of flowers. This is topped off with the title "The Flower of the Lake Marine."

A dispatch from Toronto, Ont. says: The Ontario government, has determined to make an effort to prevent Americans fishing in Ontario waters. The fishing inspectors have been given instructions to confiscate boats and tackle of Americans found fishing in forbidden waters. The western part of the province will be given the strictest attention.

The excursion steamer Columbia, which was purchased some time ago by Hiram W. Sibley, of Rochester, N. Y., is being transformed into a steam yacht. The hurricane deck has been removed, new tubular boilers are to go in and deckhouses will be built. She will be equipped for the salt water trade, and will probably be taken to the coast in the fall.

The new satellite of Saturn, discovered some weeks ago at Flagstaff, Ariz., appears to be of the fifteenth magnitude. It is Saturn's ninth moon. Its distance from the planet is 7,500,000 miles, and its period of revolution is seventeen months. It is supposed to have a diameter of between 100 and 200 miles, being vastly smaller than our moon, but much larger than the moons of Mars.

Under the caption of "Wireless Telegraphy," the North American Review in its May number presents two extremly important papers on this novel scientific discovery, one from the pen of G. Marconi, the noted inventor of wireless telegraphy, who treats of its "Origin and Development," and the other by Professor J. A. Fleming, F. R. S., who deals with its "Scientific History and Future Uses."

After a long fight Superior, Wis. is to be placed on an equal footing with Minnesota ports regarding the registering of lake tonnage for taxation. Both houses of the Wisconsin legislature have passed the new law. This law is almost an exact copy of the Minnesota law which is said to be the most liberal in the country. A tax of 3 cents will be levied on the gross tonnage of all vessels hailing from Wisconsin ports, under the old law each county could levy on a vessel as personal property.

The L. C. Waldo was the first vessel to get into Duluth this season, on May 2. After her arrival a fleet got bunched outside, and even with assistance they could not reach the piers, owing to the wind having backed up a lot of ice. It is expected that by Thursday open water will be found, and the full sweep of navigation be resumed. The steel steamer Yuma, of the Wilson line, left port and walked her way clean through. She is the first departure for the lower lakes. The passenner steamer R. G. Stewart left for Lake Superior ports May 1.

As a result of the failure of the lake vessel owners and the insurance companies to reach an agreement as to rates, and the high tariff issued by the old line companies, a movement has been inaugurated on the part of the vessel owners to carry their own risks during this season. Pickands, Mather & Co., owners of one of the largest fleets of vessels on the lakes, are the first to take this step. Not a single vessel of the big fleet, it is said, will be insured. It is also stated that the Rockefeller and Hanna fleets may join in the movement and carry no insurance, except what is already placed, some of which dates back to last season.

The Holland tow, composed of the steamer Curtis and consorts Reed, Holland and Fassett, is to be brought together again this season as soon as possible. The Fassett, ashore all winter at Sand Beach, has been released. She leaks some but is said not to be in bad condition. The others are in Detroit where they were caught last fall by the ice. Their lumber cargoes are still on board. They will be taken down to Buffalo and their cargoes discharged. The tow is to bring the Holland & Emery Co.'s lumber down from Georgian Bay this season, but sawing has not begun yet, so the Curtis will be given a new boiler before she leaves here. It will be June before any more lumber is brought in by the tow.

The Conneaut Post Herald states as follows: Sunday morning last, at about 8 o'clock fishermen who were on the pier at the harbor in large numbers were given a bad scare by a monster wave which came down the lake. Suddenly as they intently watched their bobfers floating on the still surface of the water, the pier seemed to be sinking and they all ran for their lives. It is said within a very short time the water rose between four and five feet and that as the big wave rounded the end of the pier a vortex was caused which would have swamped the largest tug. Driftwood and rubbish far along the beach was swept far into the lake. The cause of the strange phenomenon is not known. The Herald, Lorain, O. in its issue of May 1, gives the following accounts of this tidal wave. About seven years ago a tidal wave on the lake caused considerable commotion along the lake shore and in some cases row boats were swept out and never recovered. The wave was so high that the water was swept into a car standing on the pump house side track. Saturday night another tidal wave swept over the lake and yesterday morning distinct traces of the height of the wave could be seen. The water had been washed to the foot of the bank in places where it had always been high and dry. The beach was cleared of rubbish and small boats on the beach were turned over or filled with water. Other exchanges report similar conditions.

SOME EFFECTS OF THE INCREASED SIZE OF STEAMSHIPS.

Before a recent meeting of the Graduate Section of the Institution of Engineers and Shipbuilders in Scotland, Mr. Herbert C. Sadler, B. Sc. (assistant to Professor Biles, of the Chair of Naval Architecture in Glasgow University), read a paper entitled "Some Effects of Increase in size of Steamships," in which he sought to show that the development of the modern steamship had followed the well-known law of evolution, the latter types having been the natural outcome of the general advance of commercial enterprise and scientific application. The author, in opening, stated that the large number of cargo and passenger steamers over 500 feet in length, built during the past few years, must have suggested to the inquiring mind the question: When would this increase of size reach its limit? Not only in size, but also in speed there had been a corresponding advance, the 10-knot freighter having been slowly but surely replaced by its more powerful rival with a sea speed of 14 knots. In the powerful passenger liners there had also been a tendency to increase speed. Merchant ships might for convenience be divided into two classes, viz., passenger ships and cargo ships. Ships of the second-class were many and varied, but it was the larger type which would be considered. The point which must have struck everyone interested was the increase in the size of such vessels which had taken place within the last few years. In most of the trans-Atlantic lines, notably in the White Star and Leyland line, the newer cargo vessels varied in length from 500 to 600 feet. Speaking roughly, the cargo-carrying power depended upon the length, the stability on the breadth, and the strength on the depth. The draught was usually fixed by consideration of service, *i. e.*, depth available in harbors, docks, or bars at the mouth of rivers; so at the onset one element of the displacement was fixed, and the only two variables were length and breadth. Stability was no doubt a good thing, but it was quite possible to have too much of it. If a vessel had always still water in which to float, a great amount of stability would not be objectionable; but as this state of things did not as a rule obtain at sea, great stability was objectionable. Put shortly, a vessel that was too stiff was a bad sea boat. Hence it was that the tendency had been to increase length rather than beam in order to obtain sufficient displacement to carry the large amount of deadweight that was common in the latter types. The question of speed had also had some effect in shaping the development in cargo ships. The latter vessel carried much more coal than formerly, especialiy on the Atlantic service. With limited length and draught the beam must be increased if great cargo-carrying power was required, notably so in vessels trading with South American ports, especially Buenos Ayres, Increase of beam was not in itself objectionable, provided that means were taken to raise the center of gravity of the vessel as a whole, so that the metacentric height was reduced. To effect this ballast tanks at the 'tween deck height, instead of at the bottom of the ship, had been suggested, and without doubt these would eventually be adopted. But with limited draught, increase of length rather than breadth produced a better seaboat if increased amount of deadweight was required. With increased size of vessel cargo could be carried more economically. The amount of deadweight available with a given form of ship at a given speed increased—as the size of the vessel increased—at a greater ratio than the displacement. The author then showed a series of curves representing various sizes of vessels and powers required for a constant speed, the form of vessel remaining the same throughout, and said that from these curves the power required for a series of vessels of the same form, but varying displacements, and the amount of displacement available for cargo-carrying purposes, could be ascertained. Assuming roughly that the working expenses varied as the power, and the earning power varied as the deadweight carried, the saving in the larger vessels was immediately apparent. Starting with a 10,000-ton ship, for example, and increasing to 20,000 tons, or 100 per cent. the power was increased about 50 per cent., and the carrying power about 120 per cent. These figures were only approximate, of course, but they illustrated the general results obtained from increase of size. The author showed by another set of curves the effect of increase of speed with constant displacement, on indicated horse-power, and on the weight of machinery and coals to be carried. From these curves it was at once apparent that increase of speed meant a great sacrifice in weight of cargo carried, as well as increased first cost and running expenses. With increase of speed more journeys could be made in the year, but the whole question was one for shipowners more than shipbuilders. Referring to fast passenger steamers, the author said that the general effects of increase of size in their case were the same as for cargo steamers, but speed was of primary importance. For a series of passenger steamers of about 20 knots speed, of varying sizes, curves had been prepared, and the general results were similar to those referred to. In this case, however, the amount of weight available for cargo, stores, etc., at 12,000 tons displacement was very small and if the curves were continued to lower displacements it would be found that under the given assumptions a vessel of about 10,000 tons would just carry her own weight and coals, and have no margin for cargo. Unless, therefore, the passenger receipts were sufficiently high, the vessel would not pay. From these curves it was seen that if the displacement was increased 100 per cent. the power for the same speed was only increased about 60 per cent. and the carrying capacity about 250 per cent. If an extra knot was required the increase from 20 knots to 21 knots meant a much greater relative increase of power; hence increased cost and weight of machinery and less margin for cargo. The last decade had seen a steady increase in the length of fast passenger and cargo vessels, viz., from 500 to 700 feet. This continual increase could scarcely be due to the childish idea of one individual having a larger and more costly toy than another; for although for advertising purposes it might be advantageous to say that one possessed the largest or fastest ship in the world, if the receipts did not show a proportional increase it was hardly conceivable that shipowners would be philanthropic enough to place orders for large vessels merely to test shipbuilders' engineering powers and skill. The advantages obtainable by increasing the size of vessels had no doubt been recognized by some shipowners; and, if trade warranted, larger and faster steamers would, doubtless, continue to be built. The port of New York had perhaps the largest service of large and fast vessels in the world, and the result of the passenger traffic for the past eight years showed that in the mean there had been a steady falling off from 1890, at the rate of 5 per cent. per annum. This might be explained away in various ways, but the fact remained that there had been a steady falling off, accompanied with an increase in the size of steamships. Next year would see two more vessels on this route larger than any at present running, and if passenger traffic did not take a sudden turn upwards these latest off-springs of man's ingenuity would scarcely add to the prosperity of their elder sisters. If larger accommodation for cargo and passengers was required, with the present materials for construction and methods of propulsion, then ships would continue to increase in size; but without being too prophetic, the author felt inclined to think that we were at present near the limit. In the future it was more probable that shipbuilders and engineers would turn their attention to reducing weight instead of increasing size. With the adoption of some of the stronger alloys of steel, or perhaps some new material for hulls, with the universal use of water-tube boilers, and some improved form of engine, such as the steam turbine, great saving of weight could be effected. Perhaps each of these would in turn have its day, and some as yet unknown method of propulsion be adopted; and in the dim future, when the historic New Zealander mused over the rapidly decreasing rust heap that was once the Oceanic, he might be excused a smile at what would seem to him to have been a most unnecessary waste of material and labor.

PROPOSED PACIFIC CABLE.

The proposed Pacific cable to connect British Columbia with China and Australia has received a set back. A copy of an agreement entered into between the British government and the Eastern Extension Australia & China Telegraph & Cable Co. in 1893, by Lord Ripon, has just been made public. In this agreement the British government promised not to lay nor permit to be granted any concession for laying any submarine cables connecting with Hong Kong, Singapore or Labuan unless found necessary in the general interest of Great Britain. If the proposed cable from Canada is to be deprived of the large business which it was expected it would receive from a connection at Hong Kong it will be seriously handicapped. Great Britain, according to the terms of the agreement, may purchase the cable of the Eastern Extension company on 12 months' notice for the sum of £300,000.

SOME ASTRONOMICAL NOTES FOR MAY.

[Communicated.]

The principal winter constellations that have so long adorned our evening sky, may still be seen in the early evening toward the west, but they have already lost much of their usual brilliancy and before the close of the month most of them will have disappeared, lost in the rays of the advancing sun.

Capella in Auriga and Castor and Pollux in the Gemini, by reason of their greater northern declination may survive the month and be seen toward the northwest. Arcturus in Bootes is approaching the meridian and during the latter part of the month will be the leading first magnitude star in our evening sky.

Toward the northeast Vega, in Lyra is again coming into view and will soon rival Arcturus in brilliancy and beauty. Leo with the first magnitude Regulus is now passing the meridian, and toward the southeast near the horizon the ruddy Antares in Scorpio will soon appear.

Spica, the blue star in Virgo, is now seen at a disadvantage, by reason of its proximity to Jupiter. Ursa Major with its great dipper will be nearly over head in the evening during the month.

Mercury, the nearest known planet to the sun, may be seen by those who search for him, for a few mornings, before or after May 10. Venus is still the bright morning star seen in the east, but by reason of her increasing distance from us her brightness is constantly diminishing and is now but about one-third of what it was in January. Mars is no longer a conspicuous object in our evening sky, but may be found in Cancer next east of the Gemini. He is still the brightest star in that part of the heavens and may be easily recognized as the red planet. Jupiter, the giant of the solar system, is the bright planet in the east at early evening and is the most conspicuous object in our evening sky when the moon is absent.

Saturn is now classed as an evening planet, for he rises before midnight, but he will not be available for observing at seasonable hours in the evening before next month.

Two telescopic comets have been discovered recently, but they are of no special interest to ordinary observers. The most remarkable astronomical discovery of recent date, is that of another satellite of Saturn, by Professor W. H. Pickering, of Harvard college observatory. Thus the number of known satellites belonging to our system is increased to twenty-two, nine of which are attendants upon the ringed planet. The new satellite was discovered by means of photography, and is said to be thirty times as distant from its primary as our moon is from the earth; its period of revolution is seventeen months. Only those who have access to the largest telescopes can hope to ever have a glimpse of this newly-discovered member of the solar system.

Nothing remarkable in the line of sun spots has been observed since last report.

One small spot, brought into view by rotation, is now passing across the sun's disk.

The distance between the earth and sun is constantly increasing, and the northern hemisphere of the earth is slowly turning toward the sun and thus daily increasing his meridian altitude.

D. SATTERTHWAITE,

LAKE NAVAL RESERVE DRILLS.

A letter forwarded from Assistant Secretary of the Navy Allen to GovernorPingree of Michigan enclosing the schedule of drills for the naval militia for the lake states as follows:

"The Michigan to be at Cleveland, or such other Ohio port as the governor of the state may select, July 5, to instruct Ohio naval militia, for a period of eight days; to be at Detroit, July 20, to instruct Michigan naval militia, for the period of eight days; to be at Chicago Aug. 7, to instruct Illinois naval militia, for a period of eight days; the Michigan to be on this service from July 5 to August 15," Lieutenant Strathearn Hendrie, of Detroit, had a conference with Mr. Allen and Lieutenant Sutherland, who has charge of the naval milltia matters, and he says that the reserves throughout Michigan will take an active interest in the cruise this year, and will thus secure as large an allotment as possible of next year's appropriation.

THE Nautical Almanac, now in its 60th year, published by T. S. and J. D. Negus, chronometer and nautical instrument manufacturers, 140 Water street, New York. The Almanac is also an excellent coast pilot and is considered an indispensable aid to those engaged in sailing in the coast trade. The thanks of the RECORD are due Messrs. T. S. and J. D. Negus for a copy of the latest edition of their valuable little work.

MARITIME LAW.

MACEY ET AL V. PERRY.—FRIVOLD V. SAME.

District Court, S. D., New York, Dec. 28, 1898.

CHARTER PARTY—"CURRENT RATE OF EXCHANGE ON LONDON"—ADVANCES—SIXTY DAY'S "USANCE"—BURDEN OF PROOF.—Upon a charter party calling for advances by the charterer to the master at the time of loading in New York of one-half the charter hire "at the current rate of exchange on London," it appearing that there were three different rates of exchange, namely, (a) on cable transfers, (b) on sight drafts, and (c) on 60-day sight drafts, held that by long commercial usage 60 days has been the current "usance" between London and New York, and that this usance is implied in the expression "current rate of exchange on London," where nothing else is said, no different usage having become established. The burden of proof is upon the party alleging a change in a long-established usage.

SAME—STEVEDORE'S RATES.—A provision in a charter party that the "customary rates" should be paid for stevedoring, and the evidence showing that there were no established customary rates for the goods and voyage in question; held, that a reasonable compensation only should be charged.

SAME—SCREWING COTTON.—Cotton in bales being screwed down in the hold for the purpose only of enabling the charterer to carry a greater quantity of goods, the expense of screwing must be paid for by the charterer in the absence of any clause in the charter party requiring that expense to be borne by the ship.

In Admiralty.

Brown, District Judge. In the autumn of 1897 the respondent chartered from the above libelants, respectively, the steamship Benalder and St. Andrews to carry a full cargo of general merchandise from New York to ports in China and Japan, for the lump sum of £8,500 sterling for the Benalder, and £9,000 for the St. Andrews. The steamers were loaded and cleared respectively in December, 1897, and January, 1898. Most of the freight due under the bills of lading was collected by the charterers in advance at New York. Both charters required a settlement to be made by the charterers with the captain before the vessel sailed. In the case of the Benalder two-thirds of the charter hire, and in the case of the St. Andrews one-half of the charter hire was required to be "advanced to the master at the current rate of exchange on London," subject to a charge of 3 per cent. and the remainder paid "on unloading and true delivery of the cargo at ports of discharge in cash, or in short sight bills on London at current rate of exchange, without credit or discount." A subsequent clause required:

"Any difference between the charter party and bills of lading to be settled before vessel's departure from New York. If in captain's favor, by cash less insurance; if in charterer's favor, by captain's draft on his consignees payable ten days after arrival of vessel at final port of discharge; charterers to have option of appointment of tally clerks, also the stevedore to load and store the cargo under the master's supervision, steamer paying expense of same at customary rates."

As only a comparatively small amount of freight remained to be collected by the master under the bills of lading at the ports of discharge, a large balance was due to the master for the charter hire at the time of sailing. In the settlement then made, or attempted to be made, differences on several points arose, which are the subject of the above suits, namely: (1) The rate at which the advances to the master (two-thirds and one-half the charter-hire for the vessels respectively) were to be estimated in sterling "at current rate of exchange on London;" (2) the rate at which the payment of the cash balance due the master on settlement, was to be estimated in sterling; (3) the rate of deductions for insurance; (4) the "customary rates" or charges for stevedoring; (5) the charge, if any, for screwing cotton in loading ship.

1 AND 2 CURRENT RATE OF EXCHANGE IN LONDON.—The evidence shows that there are now in use three principal forms of exchange on London, all current and all differing in rate; viz., (a) the rate on the cable transfers, which is the highest rate; (b) the rate on sight drafts, which is somewhat less; and (c) the rate on 60-day sight drafts, which is considerably less than the latter. The respondent claims a conversion of dollars into sterling at a 60-day sight rate upon all their payments of money to the captain, i. e., at the rate of about $4.81½ to the pound for the Benalder, and $4.82½ for the St. Andrews—the current 60-day rate at the date of settlement. The libelants claim that all should be settled at the sight or demand rate of $4.84½.

The evidence on this subject leaves no doubt that a debt for a given number of pounds sterling payable in New York in cash, without any other stipulation, requires by mercantile usage payment in dollars at the sight rate of exchange, at least, and possibly at the cable rate. These in the present case are very near the par of exchange, that is, the value of the American gold dollar in sterling (49⅓d.) without reference to trade conditions, or 4.84\frac{8}{7}$ to the pound sterling. This rate must, therefore, be applied to the "balance" which was payable to the master in the settlement required to be made "in cash" before the ship sailed. For this cash amount in pounds sterling the master was entitled to the commercial equivalent in American dollars, without reference to any actual exchange on London. Such being in law the express contract of the latter clause of the charter, no habit, usage or practice of the respondent to pay less upon such settlements, nor previous instances of settlements at a less rate, nor of concessions by shipowners can be admitted, because contrary to the plain and ambiguous language of the charter. Steamship Co. v. Keyser, 81 Fed. 507.

No clause in the charter party required this expense of screwing the cotton to be borne by the ship. It was not necessary to the loading of the ship, and is not by any general custom a charge against the ship. It was work done for the benefit of the charterer, in order to enable him to economize space, so as to load the ship down to her weight limit, or as near thereto as possible. This charge against the ship should, therefore, be disallowed.

Decrees may be entered for the libelants for amounts to be adjusted in accordance with the above findings with costs.

FIGURES ON PIG IRON.

It is estimated by the London Statist that '98's output of pig iron amounted to 35,000,000 tons, of which more than one-third was produced in the United States. This output was five times that of 1850, three times that of 1870, and twice that of 1880. The production of pig iron in Great Britain in 1870 was three times greater than that of the United States in that year. In 1880 it was twice as great as the production of the United States. In 1889 Great Britain's output was 700,000 tons larger than that of the United States; but in the following year we passed her in the race.

In 1898 this country produced over three million tons of pig iron in excess of that of Great Britain, according to the figures of the Statist; and this excess over Great Britain's product in 1898 was more than the entire production of the United States in any year prior to 1880. In order to apply the figures to the production of iron ore in the world, in Great Britain and in the United States in the different periods named, it is only necessary to multiply the numbers by two, since it takes about two tons of ore to make one ton of pig iron. Although the production of pig iron in the United States so largely exceeded that of Great Britain in 1898, it does not follow that the latter country has declined in her output; on the contrary, she has increased her product also, but not in the same proportion. In 1870 and in 1879 the figures of production in Great Britain varied only a few tons, being nearly six million tons in each year. In 1880 and in 1896 production again varied but a few tons, being nearly seven and three-quarters millions of tons. In 1898 the product was over eight and a half millions of tons in Great Britain, while the output of the United States was more than eleven and three-quarters millions of tons, or nearly one million tons a month.

VISIBLE SUPPLY OF GRAIN

As compiled for The Marine Record, by George F. Stone, Secretary Chicago Board of Trade.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Buffalo	23,000	....	.....	3,000	47,000
Chicago	5,022,000	11,307,000	993,000	331,000	758,000
Detroit	305,000	205,000	5,000	19,000	2,000
Duluth and Superior	10,776,000	5,585,000	2,080,000	312,000	488,000
Milwaukee	32,000	1,000	4,000	.....	67,000
Montreal	101,000	34,000	589,000	3,000	11,000
Oswego	.....	.....	.....	.....	.....
Toledo	240,000	175,000	143,000	3,000	.....
Toronto	43,000	.....	15,000	.....	10,000
Grand Total	28,144,000	25,811,000	9,513,000	1,185,000	1,672,000
Corresponding Date, 1898	23,263,000	27,044,000	11,218,000	2,830,000	841,000
Increase	.....	.....	.....	.....	.....
Decrease	1,035,000	2,290,000	913,000	145,000	42,000

While the stock of grain at lake ports only is here given, the total shows the figures for the entire country except the Pacific Slope.

NOTICE TO MARINERS.

UNITED STATES OF AMERICA—NORTHERN LAKES AND RIVERS—MICHIGAN.

TREASURY DEPARTMENT,
OFFICE OF THE LIGHT-HOUSE BOARD,
WASHINGTON, D. C., April 26, 1899.

FORT GRATIOT RANGE LIGHT STATION.

Notice is hereby given that, on the opening of navigation, 1899, the lights of this range, to guide in the head of the St. Clair river to and from Lake Huron, will be re-established as follows, on the westerly bank of the St. Clair river:

Front Light.—A fixed red lantern light suspended from a pole, surmounted by an elliptical white day mark, in front and near the northerly end of the Grand Trunk Railway freight house. The focal plane of the light will be 44 feet above mean lake level and 38 feet above the base of the structure.

Rear Light.—A fixed red lantern light shown from a square, white, pyramidal, iron tower, surmounted by an elliptical white day mark, about 650 feet S. 31° W. (SSW.¾ W.) in rear of the preceding. The focal plane of the light will be 69 feet above mean lake level and 50 feet above the base of the structure.

By order of the Light-House Board:

FRANCIS S. HIGGINSON,
Rear Admiral, U. S. Navy, Chairman.

Capt. J. G. Warren, Corps of Engineers, gives notice that the lightship has been replaced, April 29, 1899, at the south end of the unfinished breakwater, Milwaukee Bay, at the expense of the Engineer Department.

DOMINION OF CANADA, ONTARIO.

I. CHANGE IN PARRY SOUND BUOYAGE.—On the opening of navigation this year the following buoys will be placed to mark main channel into Parry Sound:

Black gas buoy on Seguin bank.

1. Black spar buoy off Richmond rock.
2. Extra heavy red spar buoy off Knight shoal.
3. Extra heavy black spar buoy off McGowan rock.
5. Black spar buoy on 21-foot spot ⅓ mile W.N.W. from Three Star shoal.
4. Red spar buoy off Three Star shoal.
7. Black spar buoy off Vankoughnet ground.
6. Red spar buoy off Ariel rock.
8. Red spar buoy off Hall reef.
10. Red spar buoy on 21-foot spot between Hall reef and Twin rock.
9. Black spar buoy west of Twin rock.
12. Red spar buoy off Telegram rock.

Red gas buoy off Hooper Island shoal.

14. Red spar buoy off Borer bank.
16. Red spar buoy on 15-foot spot south of Spruce Island shoal gas buoy.

Black gas buoy off Spruce Island shoal.

15. Black spar buoy off east end of reef awash south of Spruce Island.
18. Red spar buoy off Carling rock.
17. Black spar buoy off Davy rock.
19. Black spar buoy off east extremity of Carling rock reef (for use entering or leaving Wabuno channel).

Owing to the adoption of the Carling rock channel and the abandonment of the Gordon rock channel the following spar buoys mentioned in "Notice to Mariners" No. 15, 1898, will not be placed:

12. Red buoy north of Hooper Island shoal (replaced by gas buoy).
14. Red buoy off Hooper Island shoal.
9. Black buoy off Ardent rock.
11. Black buoy off Lyon rocks.
13. Black buoy off Nias Island shoal.
16. Red buoy west of Hugh rock.
15. Black buoy on west extremity of Carling roak shoal.

The second and complete edition of the "Georgian Bay and North Channel Pilot," containing full directions for entering and leaving Parry Sound is now in the printer's hands and will shortly be published.

F. GOURDEAU,
Deputy Minister of Marine and Fisheries.

Department of Marine and Fisheries,
Ottawa, Canada, April 20, 1899.

☞ All bearings, unless otherwise noted, are magnetic and are given from seaward, miles are nautical miles, heights are above high water, and all depths are at mean low water.

Pilots, masters or others interested are earnestly requested to send information of dangers, changes in aids to navigation, notices of new shoals or channels, errors in publications, or any other facts affecting the navigation of Canadian waters to the Chief Engineer, Department of Marine and Fisheries, Ottawa, Canada.

MARINE RECORD

ESTABLISHED 1878.

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COMPASS VARIATION.

We noted in this column last week that it was in all probability a typographical error for the Dominion Minister of Marine to issue in his blue book a statement that the declination of the magnetic needle at Grand Manitoulin Island, Lake Huron, had reached the abnormal proportions of 31° 18′ W. We have since received the following courteous letter from the Department of Marine and Fisheries:

CHIEF ENGINEER'S OFFICE,
DEPARTMENT OF MARINE AND FISHERIES,
OTTAWA, CANADA, May 1, 1899.

To the Editor of The Marine Record:

I beg to inform you that the variation at Misery Bay is 3° 18′ W. I have just looked up Mr. Stewart's report and find that the original copy was correct. Of course if there had been any such abnormal variation as 31° I should have issued a notice to mariners warning them of it.

By the by, speaking of variations, has your attention ever been called to the large local deviation in Kingston harbor where there is a range of 8 points and where any vessel attempting to navigate by compass would be extremely likely to get into trouble?

Thanking you for drawing my attention to this typographical error, I remain yours sincerely,

WM. P. ANDERSON,
Chief Engineer.

In this instance Mr. Anderson has indeed contributed some valuable information to the lake marine, moreover, we feel certain that few but local experts were aware of such a vast deflection of the magnetic needle being possible in Kingston harbor. As trade from the upper lakes to Lake Ontario is now on the increase, and in fact steel steamers are being built at United States shipyards especially for that route, the navigational phenomenon thus heralded will no doubt be of untold importance and advantage to masters frequenting that port in the future and we look to our hydrographic department for a more inclusive, extensive and detailed report relative to this peculiar feature at Kingston.

It is quite possible that the elements occasioning this aberration of the magnetic needle and the consequent result therefrom might rather be classed under the head of local attraction, than variation proper. It would also be of general maritime interest to learn under what conditions such a large error was found to exist and if this is the maximum or minimum with all well adjusted compasses, whether in iron or wooden ships, and on what headings, etc., such was found to exist and how much of the correction, if any, was due to deviation as distinct from local attraction or variation.

IT may appear to be self-explanatory to some and to others all-sufficient and proper, but the RECORD still objects to gas buoys being so peculiarly described as black gas, red gas, green gas, etc., when, as a matter of fact and practice, the light shown from the floating metal buoy is a bright or white one, consuming itself, as all good gas usually burns. The United States Light-House Board, in its "Notices to Mariners," formerly used the same terms in notifying the color of the buoys. We have now before us a copy of "Notice to Mariners," issued by the Hon. F. Gourdeau, Deputy Minister of Marine and Fisheries for the Dominion of Canada, on changes in the Parry Sound buoyage, and, in the first line, we note, a "black gas buoy on Seguin bank"; also, further on in the notice, a "red gas buoy off Hooper Island Shoal," and "black gas buoy off Spruce Island Shoal." Now, it is quite apparent that the Dominion Deputy Minister of Marine would never permit black gas to be burned as an aid to navigation in such a trying and dangerous locality as Parry Sound. Red gas, we admit, would make a capital aid, and the redder the better; or even a bright white light can not be much improved upon on a dark, stormy night. But black gas—well! it might take a sharp lookout to pick it up. Let these gas buoys be painted any possible color and state so, but there is no use in trying to befog pilots worse than they frequently are. Therefore, authorities should endeavor to avoid the use of misleading, or at least ambiguous terms in their "Notices to Mariners."

IN our issue of April 27 the RECORD asked the Hydrographer, U. S. N., Washington, D. C., if Menagerie Island was in the Apostle group, and furthermore, if the Apostle group was in Lake Michigan, as he had stated in a widely published "Notice to Mariners." Of course it rests solely with the distinguished naval officer at present filling the office and duties of Hydrogapher to explain, and, or correct the apparent contradiction of terms, or rather change of geographical positions of well-known groups of islands, and give the correction as much publicity as the erroneous statement had, and perhaps a little more would be of advantage. Let us again remark that it is our belief that Menagerie Island is not in the Apostle group, nor is the Apostle group in Lake Michigan. Moreover, the stranded steel steamer Harlem, of which he gives a wreck report, is as far away from Lake Michigan as she is from the Apostle group. Query? Where is the bones of the craft laying any way? Capt. James Davidson, of West Bay City, Mich., has started on an expedition after her, and he'll find her in a few days, if the Hydrographer can't.

THE thanks of the RECORD are due the Hon. Sumner I. Kimball, General Superintendent of the United States Life-Saving Service, Treasury Department, Washington, D. C., for duplicate copies of his annual report to the Secretary of the Treasury for the fiscal year ended June 30, 1898. There were 264 stations embraced in the life-saving establishment at the close of the fiscal year. Of this number 192 were situated on the Atlantic and Gulf coasts, 56 on the coasts of the lakes, 15 on the Pacific coast and 1 at the falls of the Ohio, Louisville, Kentucky.

IT remained for the western States of Minnesota and Wisconsin to pass equitable laws relative to the taxation of vessel property. As a consequence, large fleets are transferring their ports of hail to Duluth and Superior. Taxation tactics in the various counties of the other several States bordering on the chain of lakes is an abortive sort of a burlesque, in so far as legality is concerned. It would be well if there was a uniform rate of taxation on vessel property in all lake States.

CABLE SHIP FOR THE PHILIPPINES.

The United States Army transport Hooker is being fitted up at a shipyard in Brooklyn, N. Y., for service as a cable ship in the Philippine Islands. The original name of this ship was the Panama, and she was captured by the United States auxiliary cruiser Mangrove last year, while running between Havana and Spain. She was afterward made a transport vessel for the army and given the name Hooker. All of the interior fittings of the ship are being removed to make room for three cable tanks and refrigerating rooms and appliances for the transportation of fresh meat. The forward cable tank is 13 ft. in diameter and 8 ft. high, and has a capacity for 60 tons of cable; the tank amidship, 24 ft. in diameter by 13 ft. high, with a capacity for 400 tons; the after tank, 23 ft. in diameter and 6 ft. high, with a capacity for 240 tons; or a total capacity for the three tanks of 700 tons of cable. The tanks are circular, slightly conical in shape and are built of boiler iron and made watertight. After the cable is coiled in place it will be covered with sea water, to prevent deterioration of the gutta-perch covering. In paying out the cable it will pass over a winding drum 8 ft. in diameter, located on the main deck and supplied with brakes. Under the pilot house there will be a cable testing room with sensitive scientific instruments, batteries, etc. The refrigerating plant is sufficient to accommodate 150 quarters of beef, and when not engaged in cable laying the vessel will be turned to service as a supply ship. The vessel is 333 ft. long over all, 33 ft. beam, 2,000 tons displacement, and has engines of 1,600 horse power, working on a single screw. Her cruising speed is estimated at 13 knots. She will carry two Hotchkiss 6-pounder rapid-fire guns and the crew will consist of about 150 men, including the officers.

ST. MARY'S FALLS CANAL TRAFFIC.

The annual miles-ton report of traffic through the United States and Canadian locks at Sault Ste. Marie, credits the greatest number of miles run during the season to the propeller Samuel Mitchell, of the Cleveland Rolling Mill Co., Cleveland, and amounted to 43,718 miles.

The greatest amount of freight carried by a single vessel is to the credit of the propeller Empire City, of Duluth, the Zenith Transit Co., and amounted to 138,726 tons. The same boat has to her credit the greatest number of miles-ton for the season, amounting to 126,266,531.

The largest single cargo carried by a propeller during the season was carried by the steamer S. F. B. Morse, of the Bessemer Steamship Co., of Cleveland, Ohio, and amounted to 7,280 net tons.

The largest single cargo carried by a sail vessel is to the credit of the barge John A. Roebling, of the Bessemer Steamship Co., of Cleveland, Ohio, and amounted to 7,840 tons.

The record shows that vessels were delayed at the canal 17,311 hours and 31 minutes, an everage of 58 minutes, 29 seconds. The railway swing bridge was delayed by vessels 1 hour and 7 minutes. No vessel was delayed by the bridge.

The canal postoffice handled 72,048 letters, 3,663 postal cards, 4,555 newspapers and 263 parcels during the season. Of these 581 pieces were uncalled for, and were returned to the city postoffice.

FOUR MORE LIFE-SAVING STATIONS.

A dispatch from Washington says: Three new life-saving stations will be built on Lake Michigan this summer and one will also be erected on Lake Superior. Architect Mindeloff, of the life-saving department, returned to Washington after making a careful survey of the lake points. He says sites have been selected at Sleeping Bear Point, South Manitou Island and Charlevoix, on Lake Michigan, and at Grand Marais on Lake Superior. He made complete surveys of the sites, collected a great deal of topographical data and has made his report to Supt. S. I. Kimball. Mr. Mindeloff was instructed to immediately begin on the plans and specifications so that the work can be commenced at the earliest moment. The erection of the four life-saving stations will cost between $10,000 and $15,000.

MARQUETTE BREAKWATER.

Work has been resumed on the concrete breakwater at Marquette. Maj. Sears, Corps of Engineers, U. S. A., stationed at Duluth, who is in charge of all government work in that district, hopes that 500 feet of superstructure can be built. Preparatory work began May 1, and construction work will commence as soon as the weather is suitable.

The Marquette breakwater is unique in being the first work of the kind ever attempted by the United States government in natural cement. If the work mapped out for this season is accomplished one-half the breakwater will be finished. The entire breakwater is 3,000 feet long. The superstructure at present caps one-third of it. The estimated cost of the breakwater complete is $232,936.71.

NOTICE TO MARINERS.

LIGHT-HOUSE ESTABLISHMENT.
OFFICE OF THE LIGHT-HOUSE INSPECTOR, 10TH DIST.,
BUFFALO, NEW YORK, May 3rd, 1899.

Notice is hereby given that the light at Maumee Straight Channel Inner Gas Buoy No. 50 has been accidentally extinguished and will be re-exhibited as soon as an examination and repair of the buoy can be made.

FRANKLIN HANFORD, Commander, U. S. N.,
Inspector 10th L. H. District.

SOME UNRECOGNIZED EXPLOSIVES.

It would appear from an article on explosions from common substances by Prof. Charles E. Munroe, U. S. N., in Science, March 10, that common wheat flour is to be included among explosives. He gives an account of some notable explosions in flour mills, and tells us that "Knowing the chemical composition of flour, we may calculate approximately the mechanical work which a given mass of flour can perform, and find that the contents of an ordinary sack, when mixed with 4,000 cubic feet of air, will generate force enough to throw 2,500 tons mass to a height of 100 feet. If we now consider the many tons of flour there must have been in a mill such as the Washburn 'A,' where as much as 1,000 pounds of dust per day was collected from a single pipe, we can readily comprehend how such great destruction can be wrought."

Dust from oatmeal, candy, rice, malt, spice, sawdust and even soap and metallic zinc may also become explosive under favoring conditions. Even the air we breathe, when frozen into a liquid, becomes an explosive, expanding 800 volumes when returning to the gaseous form. Water, when transferred into steam, increases more than twice as much or 1,700 volumes. Common illuminating gas is not explosive, except when mixed with air.

"At the bombardment of Paris, the governor of the city feared that the gas-holders of La Villete would endanger the fortifications. He was assured that there was not the smallest risk; that if a projectile penetrated a gas-holder and set fire to the gas the latter would only burn out as a jet of flame, and that there could be no such thing as an explosion, since the constant pressure would effectually prevent access of air. Shortly after a shell pierced the holder at Ivry and lighted the gas. There was a huge jet of flame for eight minutes; the holder sank slowly down, and all was over. At La Villete a shell penetrated a filled gas-holder and burst in the interior without igniting the gas. At Vaugirard another shell entered, and again there was neither ignition nor explosion."

OFFICERS APPOINTED.

M. A. BRADLEY, Cleveland.—Steamer, Alva, master, M. Mulholland; engineer, J. N. Kirby. George Stone, master, Charles H. Francke; engineer, Edwin Black. Hesper, master, Joseph A. Holmes; engineer, A. R. Crook. Pasadena, master, John H. Wysoon; engineer, A. J. Millett. Gladstone, master, Paul Howell; engineer, P. H. Doyle. M. B. Grover, master, W. E. Morris; engineer, J. F. Mahaney. City of Cleveland, master, B. H. Jones; engineer, George F. Hunt. R. P. Ranney, master, Clint Ennis; engineer, Geo. W. Cross. J. S. Fay, master, D. Buie; engineer, Dan Conway. F. Kelley, master, Chauncey Ney; engineer, W. A. Robbins. S. E. Sheldon, master, C. R. Baker; engineer, Joseph Griffin. Schooner, Adriatic, master, E. Saveland. John Martin, master, Las Lawless. A. Cobb, master, N. Gifford. D. P. Rhodes, master, W. A. Seeles. T. Quayle, master, Fred Green. Sandusky, master, A. B. Parsons. Negaunee, master, D. C. Olson.

JAMES DAVIDSON, West Bay City, Mich.—Steamer, Appomattox, master, Hugh Stevenson; engineer, Edward A. Carter. Shenandoah, master, George C. Stevenson, engineer, R. E. Walker. Rappahannock, master, E. Smades; engineer, E. J. Rae. Sacramento, master, Ira B. Mansfield; engineer, C. A. Fletcher. Amazonas, master, A. J. Mahon; engineer, Richard Mahoney. Orinoco, master, George C. Burns; engineer, George M. Wise. Venezuela, master, George W. Starkey; engineer, J. Phelan. Nicaragua, master, William G. Maltby; engineer, Hugh McAlpin. Bermuda, master, John McAvoy; engineer, R. H. Rowswell. Monohansett, master, Richard Bifield; engineer, John Haller. Robert Holland, master, W. L. Montgomery; engineer, J. Wellman. Tug, Industry, master, A. H. Kent; engineer, John Doe. Annie M. Pierce, master, John Ross; engineer, Charles Young. Schooner, new schooner No. 91, master, Carl Johnson. New schooner No. 92, master, David W. Williams. Armenia, master, Lawrence Coleman. Abyssinia, master, Fred T. Weimar. Algeria, master, Charles Jackson. Crete, master, Martin Johnson. Granada, master, Charles Frederichs. Paisley, master, F. J. Starkey. Grampian, master, Mark J. Starkey. Lizzie A. Law, master, Peter Overood. White & Friant, master, John Stevenson.

MINCH & NICHOLAS TRANSIT CO., Capt. William Gerlach, manager, Cleveland.—Steamer, I. W. Nicholas, master, N. B. Nelson; engineer, William Miller. Onoko, master, Joseph Lampoh; engineer, A. E. Meeker. Philip Minch, master, W. H. Johnson; engineer, R. D. Butler. John N. Glidden, master, W. S. Carlos; engineer, Andrew Nelson. Schooner, Dundee, master, Martin Elen. Sophia Minch, master, John H. Christie. Warmington—

GILCHRIST LINE, Alpena, Mich.—Steamer, Viking, master, H. Richardson; first engineer, Thad. H. Kneale; second engineer, Chas. Miller. Norseman, master, H. Bennett; mate, Charles Pierce; first engineer, H. Parker; second engineer, Sam Kissack. S. C. Hall, master, H. L. Foster; mate, John Place; first engineer, L. Richards; second engineer, William Hamilton; steward, William Ketchum. Tow barge, Vinland, master, Charles Hanson. Nellie Mason, master, J. B. Mitchell. Sam Flint, master, Thos. Stephens. Russian, master, Jas. Hamilton. Knight Templar, master, Jos. Adams. Light Guard, master, Jas. Hamilton. S. H. Lathrop, master, James Cotey. Ida Keith, master, Philip Deroy. J. B. Kitchen, master, Benjamin McCaffrey. Tug, John Owens, master, Thos. Lillis; mate, L. Johnson; first engineer, D. Thompson. Frank W., master, John Lawson; engineer, Byron Parsons. Ralph, master, Jas. Putman; engineer, Antoine Dewey.

The following captains have been appointed to boats of the new line of the Tonawanda Iron & Steel Co.: W. H. Gratwick, Edward Sullivan; Moravia, Capt. Hanson; Geo. Spencer, Archie Williams; B. L. Pennington, Henry L. Savage; Veronica, O. J. Solean; Amboy, W. R. Williams; 101, J. J. Carr. The captain of the Quito, which tows the 101, has been appointed by Capt. Benham in Cleveland.

BIDS FOR IMPROVEMENTS AT TWO HARBORS.

Abstract of proposals for building riprap embankment at Agate Bay (Two Harbors), Minnesota, opened May 1, 1899, by Major Clinton B. Sears, Corps of Engineers, U. S. Army, at Duluth, Minn.

	Name and Address of Bidder.	For Embankment, 313 feet. Per running foot.	Total.
1.	King & Steele, Duluth, Minn....	$119.00	$37,247.00
2.	Porter Bros., Duluth, Minn.....	116.23	36,379.99
3.	Frank Campbell. Duluth, Minn...	109.40	34,242.20
4.	*Engle & Osman, Duluth, Minn..	84.73	26,520.49
5.	Butler-Ryan Co., St. Paul, Minn..	198.00	61,974.00
6.	Alexander Sang, Duluth, Minn...	130.25	40,768.25
7.	Chas. Stone, St. Paul, Minn.....	194.00	60,722.00

*The bid of Engle & Osman, Duluth, being the lowest, it has been recommended for acceptance.

LAKE CARRIERS' ASSOCIATION.

At a meeting of the Executive Committee of the Lake Carriers' Association, held in the offices of Capt. James Corrigan, on Wednesday, it was decided after a long discussion, every phase of the question being gone into, that the Association should support Mr. Conners. Accordingly, the following preamble and resolutions were adopted:

Whereas, The system of grain shoveling in vogue at Buffalo for three seasons past has operated to correct many abuses; has furnished good wages to the men actually doing the work; saved vessels from delays and extortions, and been of marked advantage to the grain trade of Buffalo, and for the mutual advantage of the shoveler and the vessel this system should continue; and

Whereas, A contest has been excited in Buffalo to do away with this system and compel a return to the old system with all its abuses;

Resolved, That the members of the Lake Carriers' Association have confidence that their contractor, W. J. Conners, is ready and willing to give the men fair treatment and the same wages as last year, and that they stand by Mr. Conners in this contest and insist on the performance of the work under his contract.

TO BUILD NAVAL TONNAGE.

The Navy Department is engaged in securing information of the capacity of shipbuilding plants now on the Great Lakes. The reports, when they are received, will show the facilities at each establishment for the construction of war vessels. There is no reason why this industry should be discouraged and killed, says the Army and Navy Journal, as it has been by the continuance of an antediluvian document drawn up more than eighty years ago and intended by those concerned in its composition to tide over a period of suspicion between the governments represented on the shores of the Great Lakes. The Rush-Bagot agreement is a relic of diplomacy. It outlived its usefulness many years ago, and it has survived, to the detriment of an important and worthy industry in a certain section, without rendering any adequate compensation for the restrictions it imposes upon this government. The present may surely be accepted as the time when the United States and Great Britain have least to fear of each other, and when neither government need be afraid to trust the other with warships on the Great Lakes.

TRANSFERS OF VESSEL PROPERTY.

The following vessel transfers have been recorded at the Grand Haven custom house: Steamer N. McGraft, one-half interest sold by William E. Parsons to Ed. Hunter of Muskegon, consideration $400; schooner E. Scoville, sold by S. Brensten, of Milwaukee, to Mrs. Lucy Rath, of Ludington, consideration $700; steamer Elva, one-half interest sold by J. F. Keighley, of St. Ignace, to George D. Arnold, of Mackinaw, consideration $3,000; steamer Eleanor, sold by Hosea W. Rogers, of Saugatuck, to Leonard A. Robinson, of Montague, consideration $1,600; steamer M. & M., sold by D. H. Leahy et al., of Two Rivers, Wis., to F. A. Sears, of Saugatuck, consideration $1,700; schooner J. L. Higgie, sold by James M. Thompson et al., of Charlevoix, to G. C. Gerkin, consideration $900.

The following transfers of vessel property have recently been placed on record at the Milwaukee customs office: Schooner Fearless, sold by H. Oertling, of Milwaukee, to H. Williamson, of Racine, the whole, consideration nominal; schooner R. P. Mason, sold by the estate of Clemens Reiss to Ole Madison and Albert Williamson, of Sheboygan, the whole, consideration nominal; steamer George C. Markham sold by J. D. Wanvig and others, of Milwaukee, to Thomas Munroe, William Brenen and Anson F. Temple, seven-eighths, $8.750; steamer Susie Chipman, sold by Julius Kroos to Arthur F. Winter, of Sheboygan, three-ninths, $3,500; same vessel, sold by Julius Kroos to Nels A. Sunderson, of Sheboygan, one-ninth, $1,900.

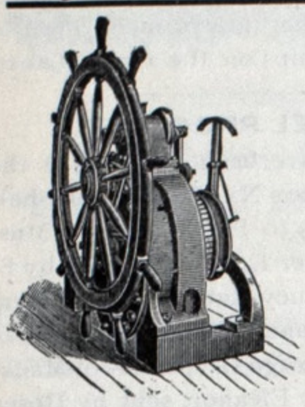
OBSTRUCTIONS TO NAVIGATION.

Lieut. W. J. Wilson, in charge of the hydrographic office, issued the first bulletin of the season for the guidance of mariners sailing the lakes. It was dated May 1, and will be sent to the master of every vessel sailing from Chicago. Attention is called to three recently discovered and dangerous obstructions in Lake Michigan, as follows: "On the evening of Sept. 4, 1898, the schooner Richard Winslow sprung a leak and foundered in the Lake Michigan approach to Straits of Mackinac. The wreck is near the edge of White Shoal in thirty-five feet of water. On Feb. 10, 1899, the steamer J. V. Moran was so much injured by ice in Lake Michigan that she sprung a leak and foundered about twelve miles off Muskegon lake entrance. The Moran was abandoned in fifty fathoms of water. She was last sighted on the afternoon of Feb. 12. The wreck of the steambarge Horace A. Tuttle at the entrance of Michigan City harbor is still a menace to navigation. Government contractors have been ordered to clear away the wreckage."

IN THESE days of trade combinations and consolidations run wild, it is at least refreshing, and in fact unique, to find that there are some individual firms who have backbone and business acumen enough about them to have faith in their own industry. A combination has recently been formed among the bearing metal concerns in the country. Approached relative to their views on consolidation with the other firms, the Ajax Metal Co., Philadelphia, Pa., very promptly and pertinently state "that they are not in the ring, and don't propose to be—good, bad, or indifferent." The Ajax Metal Co. say: "We purpose to continue our regular and systematic way in the future, same as in the past, giving our patrons superior metal at lowest possible prices." There certainly is nothing weak-kneed about a statement like the foregoing, and, perhaps, when this consolidation epidemic has about passed over, other firms will also wish that they had maintained their business and individual identity.

SEAMEN—Construction of Shipping Articles—Time of Reporting for Duty.—Shipping articles, which required a seamen to report on board on a day named, but specified no hour, are to be construed most favorably to the seamen; and where he reported for duty on the day named, several hours before the time fixed for the vessel to sail, he will be held to have complied with the contract. The fact that, after the articles were signed, the master told him verbally to report at an earlier hour, cannot affect the construction of the contract. The Alice Blanchard, 92 Fed. Rep. (U. S.) 519.

Queen City Patent Hydraulic Steerer.



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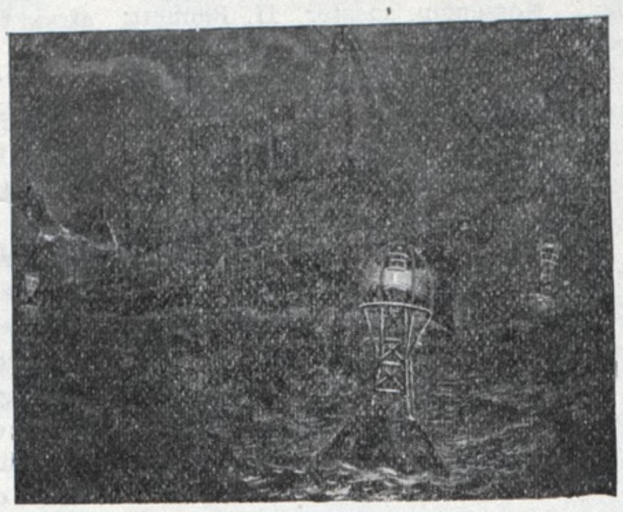

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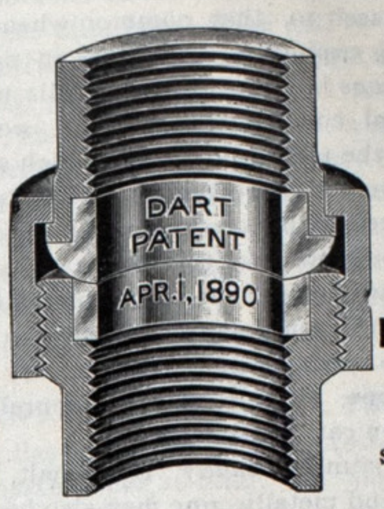

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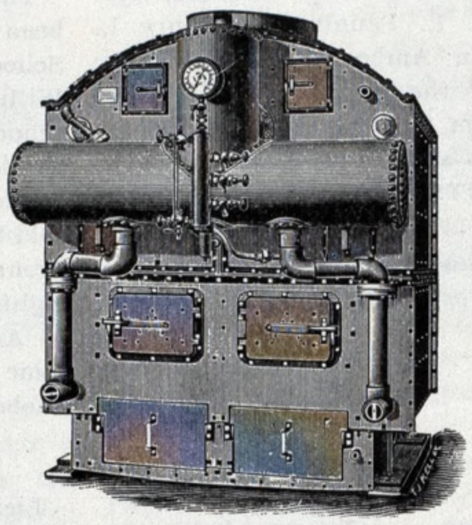

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DREDGING.

57 WADE BUILDING. CLEVELAND, OHIO.

TO INCREASE OUR COMMERCE.

As the guest of honor at a dinner in New York a few days ago, Senator Frye, of Maine, spoke on trade and commerce and the best way of promoting them, a subject in which all intelligent Americans take a deep interest. Mr. Frye said that the commercial war upon which the world has entered, will become fiercer and fiercer, and he expressed the opinion that Germany will be our most dangerous rival. This view finds warrant in the fact that the wages of labor are much less than here—Mr. Frye said not one-half of ours—while no other European country is manifesting so much energy and enterprise in industrial and commercial development as Germany is. That nation has made remarkable progress in the last few years, in securing South American trade, and it is expanding its commerce in Asia. German manufactures go to all the markets of the world, and the exports of that country are steadily growing.

The advantages which Germany has over the United States, are in the lower wages of labor and in the fact that she transports her products in her own ships. Senator Frye said that we could not safely reduce wages to the German plane, but we should carry in our own ships, under our own flag, all of our imports and exports. He urged that we should pay to our own people the $500,000 a day we now pay to foreigners. "We should make of the officers of those ships," he said, "active, intelligent and interested agents for the discovery of new markets, and the promotion of our trade. Suppose, to accomplish this, it does cost us $8,000,000 or $10,000,000 annually, will there not be ample compensation? Great Britain, Germany and France will not surrender this carrying trade without a determined conflict, which alone will reduce freight rates 25 per cent." Such a reduction would save to our people $50,000,000 annually, our foreign commerce being estimated at 50,000,000 tons, and the average ocean freight rate the world over being $4 a ton. The importance which Senator Frye attaches to a merchant marine as a means of extending our commerce, and of competing with commercial rivals, is not in the least exaggerated. Next to being able to offer our products as cheaply as our competitors and to guarantee their quality, there is nothing so essential to our commercial expansion as to be able to carry those products in our own ships, under our own flag. The slow growth of our trade with South America is largely due to our not having steamship lines to the various southern ports, and we shall be at the same disadvantage in the contest for Oriental trade. In order to secure such share of that trade as we should have, we must have steamship lines running from our Pacific ports to all the ports of the Orient.

ASTRONOMICAL DATA FOR MAY.

Astronomical data for May, 1899, furnished to the MARINE RECORD by the Washburn Observatory:

Mercury and Venus are both morning stars the present month. The former may best be seen for some days preceding and following May 9, on which date the planet reaches its greatest apparent distance west from the sun. Venus continues to diminish in brilliancy, but the decrease is less each month than for the month preceding, since the greater fullness of the disk compensates in part for the greater distance from the earth as the planet approaches the point of its orbit farthest beyond the sun. Mars and Jupiter are the conspicuous planets of the evening sky. The former appears as a ruddy star to the northwest, while the latter is directly south in the later evening. Saturn also may be seen rising in the southeast in the middle evening.

The times of sunrise and sunset at Milwaukee for the month are as follows:

	SUNRISE.	SUNSET.
May 1	4:46	6:52
" 11	4:33	7:04
" 21	4:22	7:14
" 31	4:16	7:23

The times of the moon's phases are:

Third Quarter	May 2,	11:47 a. m.
New Moon	" 9,	11:39 a. m.
First Quarter	" 17,	11:13 a. m.
Full Moon	" 24,	11:49 p. m.
Third Quarter	" 31,	4:55 p. m.

The principal fixed stars visible during the month in the evening hours are: To the west, Capella, Castor and Pollux, Procyon and Regulus; to the east, Spica and Arcturus.

REAR-ADMIRAL Lord Charles Beresford, R. N., contributes to the May number of the North American Review, an important article entitled "China and the Powers," dealing with the present actual position and prospects of China, and how American interests are thereby affected. None of the Powers has greater interests at stake in China, he declares, than Great Britain and the United States—the twain having over seventy-two per cent. of the whole of the foreign trade with China in their hands.

FUTURE HIGHWAY FOR COMMERCE.

All the probable passage ways have been so far examined that the world has settled down upon the belief that only two routes can be the scene of the great commerce which is hoped for in the future. One is on the Isthmus of Panama, which is the least in actual distance from the Atlantic to the Pacific, and the other takes its course through the Peninsula which connects the Isthmus with the main continent to the north, as it goes widening from Costa Rica to Mexico. One route is 46 miles, and the other between 170 and 180. While there is that great difference in distance to be traversed, the difference in the canals to be excavated is by no means so great. The Panama canal is all excavation from one end to the other, except the 11½ miles of artificial lake, and is 46 miles in length. The Nicaragua route makes use of Lake Nicaragua, an inland sea which was one day connected with the Pacific and was a part of its vast expanse. The landlocked sharks of the lake are living testimonials of the fact. Besides the lake, a long stretch of river can be so utilized that, while the distance on the Nicaragua route is what has been stated, the canal making will be somewhere between 27 and 35 miles, according to the plan which shall finally be adopted. In addition to the canal making, the rivers used will have to be dredged and lowered and some parts of them turned aside. The lake will also need dredging in various places.—From The Nicaragua Canal, by the Hon. T. B. Reed, in North American Review for May.

A LARGE TRAVELING CRANE.

Off Cape Henlopen, and two and one-half miles out toward Cape May, in Delaware Bay, there is being built a large breakwater two miles long and fourteen feet above high tide. At work upon this breakwater there is the largest traveling crane ever built for such a purpose. This crane is of iron and steel and weighs 125 tons when loaded and watered. It has the first steel boom ever used on a crane of this capacity. This boom is constructed on the lattice principle, and is 10 feet wide at the heel, running out to 3 feet in its length of 60 feet. The A legs are of steel and shorter than in usual practice. The crane is equipped with a tank of 1,000 gallons capacity, and is furnished with steam by an upright boiler of special design, 60 inches in diameter and 7 feet high. The engines are 12x16, with a capacity of 60-horse power, fitted with McMyler's outside valve rocker which does away with the cam. The beams which carry the en-

gine bed are 30 feet in length and extend backward beneath the tank and boiler, counterbalancing the weight of the beam and the load. The machine has a traveling gear, swing gear, boom hoist and main hoist. All the levers are arranged on the front of the machine very conveniently for the runner. The crane was erected by a derrick on a scow, and some of the pieces, which weighed over twenty tons, were handled with great difficulty in the heavy swell. The machine was designed and built by McMyler Mfg. Co., of Cleveland, O., for Hughes Bros. & Bangs, and erected by Mr. W. Paddock. Its capacity is 20 tons on a long boom and 35 tons on a 40-foot radius.

UTILITY OF WIRELESS TELEGRAPHY.

Lastly, one or two words must be said as to the immediate future of the invention. There is no question that for communication between ships at sea, between lightships and light-houses and the shore, and between ships and coast guard stations there is a wide field of utility open to it at once. It will economically replace short submarine cables in a few instances, or perhaps be supplementary to them in case of breakdown. It will enable communication to be cheaply established to islands and places where the traffic is not great enough to carry the expense of a submarine cable, and it will, without doubt, be adopted in some form in naval and military operations. It will never replace entirely telegraphy with wires, because the use of the continuous wire secured a privacy not otherwise to be obtained. From one point of view, the difference between wireless telegraphy and telegraphy with wires is the same as the difference between a postcard, or open letter, and a sealed one. The continuous wire is like the envelope of the letter. It prevents the diffusion of the information beyond certain limits. The future, however, will slowly unroll the scope and limitations of this new telegraphy. Its practical uses are indubitable, but it has a wider interest from a scientific standpoint, in that it opens up a vista of fascinating speculation as to the possible revelations in store for us concerning the powers and potencies of this mysterious ether.—From "Scientific History and Future Uses of Wireless Telegraphy," by J. A. Fleming, Professor of Electrical Engineering in University College, London, in North American Review for May.

SUMMER OUTINGS.

Before deciding when and where to spend a portion of the hot season this year, lookout for the booklet issued by the Nickel Plate Road, entitled "Summer Outings," including many picturesque points on the south shore of Lake Erie and the classic shores of Lake Chatauqua. Remember our low rates. 31-21

HOT SHOT.

Our readers are acquainted—some of them too well acquainted—with the systems carried out by the customs officers of New York in respect of personal luggage of passengers. The late Mr. Dingley, author of the tariff of that name, was persuaded by the tradesmen of New York that by making it illegal for passengers arriving at the Empire City to take with them personal luggage exceeding £20 in value, he would add £2,000,000 a year to the revenue of the country. But the £2,000,000 in theory have shrunk to £40,000 in practice; while the Customs Service has been degraded beyond comparison with that of any civilized country in the world. Passengers are interrogated by the inspectors, 90 per cent. of whom are amenable to bribery, with such questions as:

Have you bought anything abroad? Do your purchases exceed $100 in value? State what they are. Have you bought any clothes; if so, state how many suits and the cost of each; or how many dresses and their cost? Have you bought any and what underwear? This question is addressed to women by male inspectors, and insisted on. Have you bought any and what articles for gifts or souvenirs? Name each and the cost of each. Give us a list of all your other purchases of whatever description and the prices.

These are the questions vouched for by Mr. Smalley, the New York correspondent of The Times; questions to which women traveling alone are subjected by impudent inspectors who, notwithstanding the answers, insist upon ransacking trunks and portmanteaux, and turning them inside out, unless they are handsomely bribed, in order to discover whether a passenger is importing into the country apparel for personal use, to a value exceeding £20. We understand that from very shame instructions have been given to modify the zeal and impertinence of these custom inspectors, so far as foreigners are concerned. And, as the correspondent in The Times says, "It is only the American who is forced to choose between nakedness and the payment of blackmail." The policy of protection as a means of raising a revenue, or for the purpose of encouraging home industries, is, at least, understandable. But this attempt to prevent Americans visiting Europe from returning with European-made clothing exceeding £20 in value is an example of the grasping spirit of the New York tradesmen, and of the profound ignorance, or worse, of the Secretary of the Treasury and his subordinates. The regulation is impossible of execution except in respect of immigrants. The attempt to carry it out is an example of meanness and indecency without parallel in the customs regulations of the world. President McKinley ought to be ashamed to suffer this system of blackmail and impertinence to be inflicted upon innocent passengers in the name of the great and proud people of whom he is the chief magistrate.—The Shipping World, London.

EASTERN FREIGHTS.

Messrs. Funch, Edye & Co., New York, in their weekly freight report to the RECORD state as follows:

The freight market shows a considerable shrinkage in the volume of business contracted for, and which fact is referable to two causes; the first being the stoppage of grain shipments, the other, the gradual absorption of steamers pressing on the market. In view of the latter fact, owners have begun to hold their open tonnage for better figures, and a slight change for the better is already noticeable. The next week or two will determine as to whether the advance will be a lasting one; a better inquiry for our grain would decide this question favorably. In the interim, timber freights, the last to be adversely affected, commence to show weakness, and we fear that under these circumstances the slightly stronger tendency for other fixtures from the Gulf cannot be maintained.

The market for sail tonnage remains in about the same condition as last week, and the only event of interest is the charter of a vessel for case oil from Philadelphia to Japan at 22 cents, which figure represents a decline of one cent.

THE Steam Engine Indicator, published by the Power Publishing Co., World Building, New York. The several chapters and illustrations contained in this valuable work have been compiled from contributions to the literature regarding the steam engine indicator prepared from time to time by the writer for the columns of Power and are addressed to the practical man who desires to apply the indicator as an instrument of ordinary precision to the problems of steam engine design and operation. The work is bound in cloth covers 9x6 inches and contains 208 pages. Price, $1.50 from the publishers.

Collision—Tug and Tow—Negligence of the Tow—Presumption.—Where a tug, having a heavy schooner in tow, safely passed a schooner lying at anchor at a distance of at least 55 feet, and the officers of the tow admitted that none of them saw the anchored schooner until they were "right into her," it will be presumed that the collision was the result of the negligence of the tow, and the tug will not be liable therefor. The Albert N. Hughes, 92 Fed. Rep. (U. S.) 525.

KEEP AN EYE ON IT.

Patrons of the Nickel Plate Road may prepare themselves for many pleasant surprises during the coming summer season by the announcement of low rate excursions. Read the newspapers and consult ticket agents for reduced rates before purchasing your tickets anywhere. Remember our Peerless Trio of Daily Express Trains without change of cars between Chicago, New York or Boston. Don't forget our rates are lower than via other lines. 32-21

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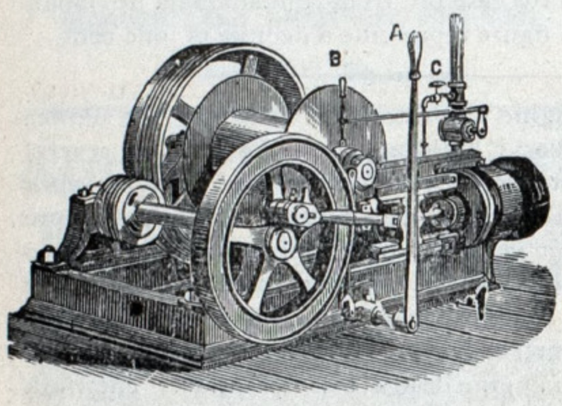

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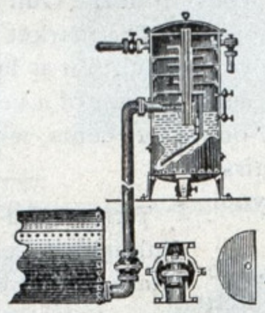

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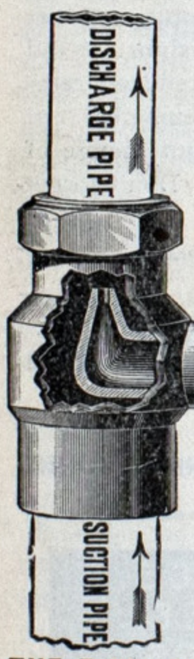

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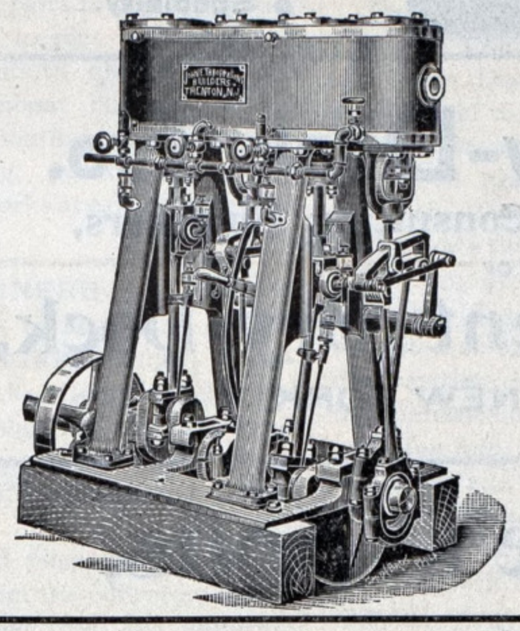

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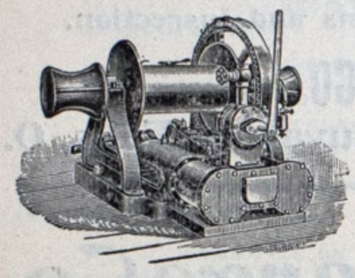

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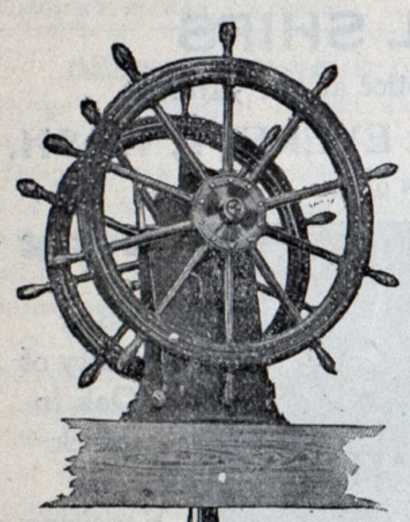

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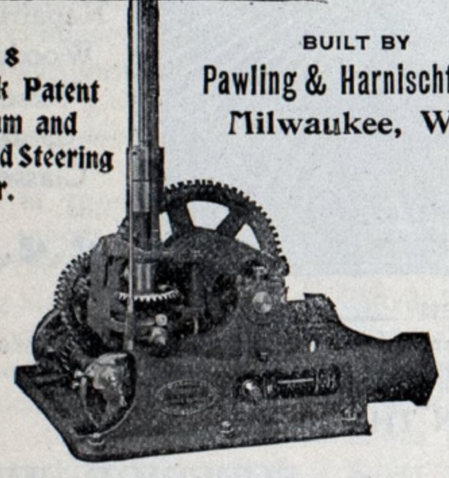

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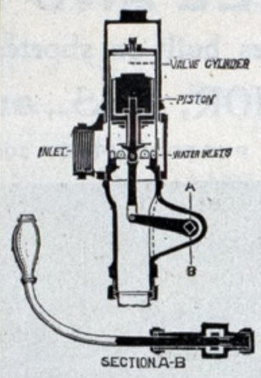

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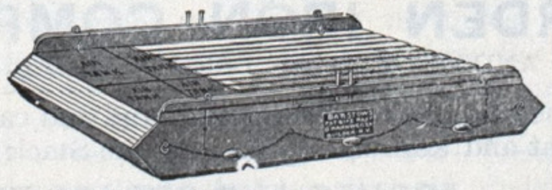

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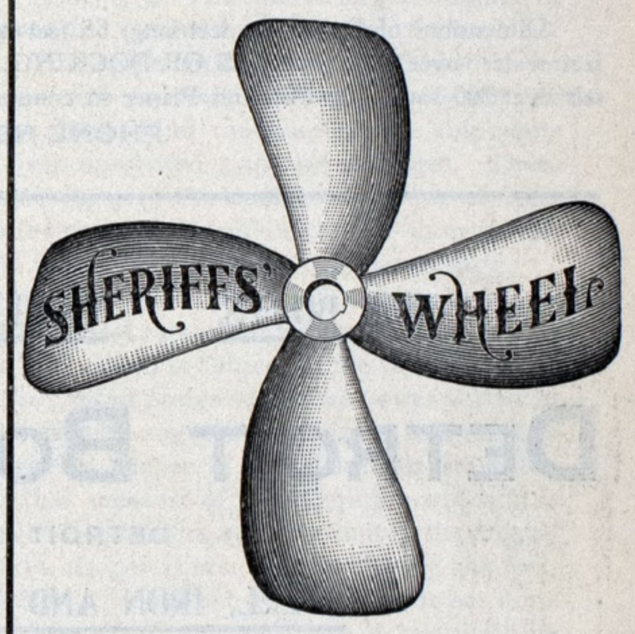

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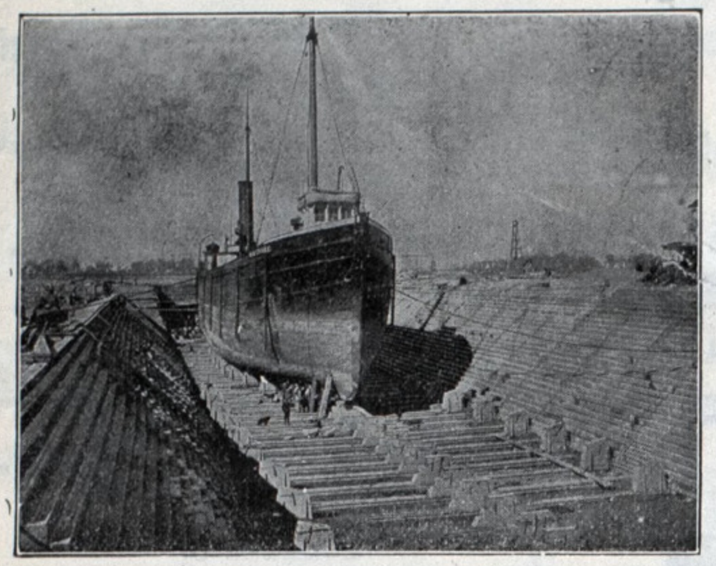

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